

# Gefen TOOLBOX

## HDKVM Extra Long Range Extender

**GTB-HDKVM-ELR  
GTB-HDKVM-ELR-BLK**

**User Manual**



**[www.gefentoolbox.com](http://www.gefentoolbox.com)**

## ASKING FOR ASSISTANCE

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**Rev A1**

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# INTRODUCTION

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Congratulations on your purchase of the GefenToolBox HDKVM Extra Long Range Extender. Your complete satisfaction is very important to us.

## About Gefen

We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line. Please visit <http://www.gefen.com> for the latest offerings in High-Definition signal solutions or call us between the hours of 8:00 am and 5:00 pm Monday-Friday, Pacific Standard Time for assistance with your A/V needs. We'll be happy to assist you.

## Why GefenToolBox?

The GefenToolBox line offers portable and easy-to-install solutions for common A/V system integration setups using DVI and HDMI connectivity. GefenToolBox products are wall-mountable and small in size. GefenToolBox products are easily transported in the field and are ready for immediate and simple installations in working environments. These products come finished in a glossy color to blend in with either a white wall or black cabinet.

## The GefenToolBox HDKVM Extra Long Range Extender

The HDKVM Extra Long Range Extender extends any Hi-Def source plus Ethernet, and USB to an HDTV display or other digital signage application over a distance up to 330 feet (100 meters) using two CAT-5 cables.

USB 2.0 data rates up to 480 Mbps are supported in addition to backward-compatibility with USB 1.1. The Receiver Unit allows the connections of up to two (2) USB devices, providing access to printers, scanners, cameras, external storage media, digital signage, and automated control systems.

This product uses Gefen ELR (Extra Long Range) technology, supporting HDBaseT Specifications, allowing multiple signals to travel along the same CAT-5 cable. A second CAT-5 cable is used for USB extension.

## How It Works

Place the Sender Unit next to the Hi-Def source. Use the included HDMI cable to connect the Hi-Def source to the Sender Unit. Use the supplied USB cable to connect the USB host (source) device to the USB port on the Sender Unit. Connect the Receiver Unit to the HDTV display monitor or digital signage display with an HDMI cable. Connect the USB devices to the Receiver Unit. Use two CAT-5 cables, up to 330 feet (100 meters), to connect the Sender Unit to the Receiver Unit. Connect the included locking power supplies to the Sender Unit and Receiver Unit, and then connect both power cords to available electrical outlets.

## OPERATION NOTES

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### PLEASE READ THESE NOTES BEFORE INSTALLING OR OPERATING THE HDKVM EXTRA LONG RANGE EXTENDER

- CAT-5 or CAT-6 cables should not exceed 330 feet (100 meters).
- Shielded (STP) CAT-5 or CAT-6 is recommended. However, un-shielded (UTP) CAT-5 or CAT-6 is acceptable.

**NOTE:** The shielded cable has an advantage by providing immunity to Electromagnetic Interference (EMI), cell phones and A/C motors.

- The GefenToolBox HDKVM Extra Long Range Extender features the ability to generate compatible EDID and Hot Plug signals when working with different brands of source devices and monitors.
- Ethernet is Full Duplex.

# FEATURES

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## Features

- Supports 1080p Full HD and 3DTV at 330 feet (100 meters)
- Extends USB 2.0 up to 330 feet (100 meters)
- Supports USB 2.0 480 Mbps
- Backward-compatible with USB 1.1 devices
- IR backchannel
- Ethernet support
- Locking Power Supplies
- Surface-mountable

## Package Includes

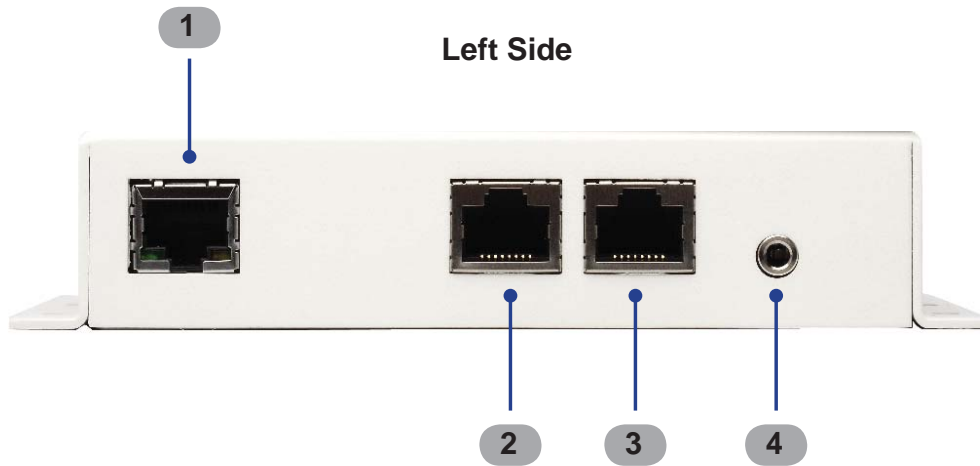
- (1) GefenToolBox HDKVM Extra Long Range Extender - Sender Unit
- (1) GefenToolBox HDKVM Extra Long Range Extender - Receiver Unit
- (1) 6 ft. HDMI cable (M-M)
- (1) 6 ft. USB cable (A-B)
- (2) 5 V DC Locking Power Supplies
- (1) User Manual

# SENDER UNIT LAYOUT

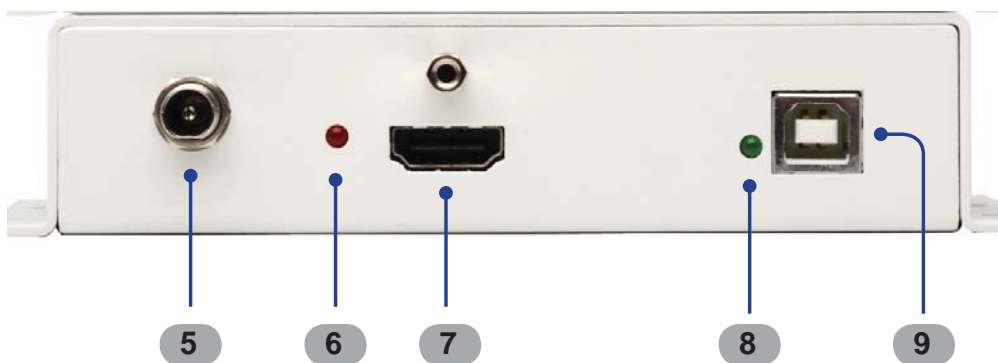
Top



Left Side



Right Side



## SENDER UNIT DESCRIPTIONS

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- 1 USB LINK**  
Transmits the USB signals from the Sender Unit to the Receiver Unit using CAT-5e / CAT-6 cable.
- 2 LINK**  
Transmits the HDMI, Ethernet, and IR signals from the Sender Unit to the Receiver Unit using CAT-5e / CAT-6 cable.
- 3 ETH**  
Connect a CAT-5 cable from a port on a local Ethernet switch to this jack. The HDKVM Extra Long Range Extender supports 10/100BaseT Ethernet.
- 4 IR**  
Connect an IR Blaster cable (Gefen part no. EXT-2IREMIT) from this port to the Hi-Def source to control the source from the viewing location.
- 5 5V DC**  
Connect the included 5 V DC locking power supply to this connector.
- 6 PWR**  
This LED will glow red once the included 5 V DC locking power supply has been properly connected to the unit and the locking power supply has been connected to an available electrical outlet.
- 7 HDMI In**  
Connect an HDMI cable from the Hi-Def source to this HDMI connector.
- 8 USB Indicator**  
This LED glows green when a USB device is connected to the Sender Unit.
- 9 USB In**  
Connects the Sender Unit to the computer using a USB cable.

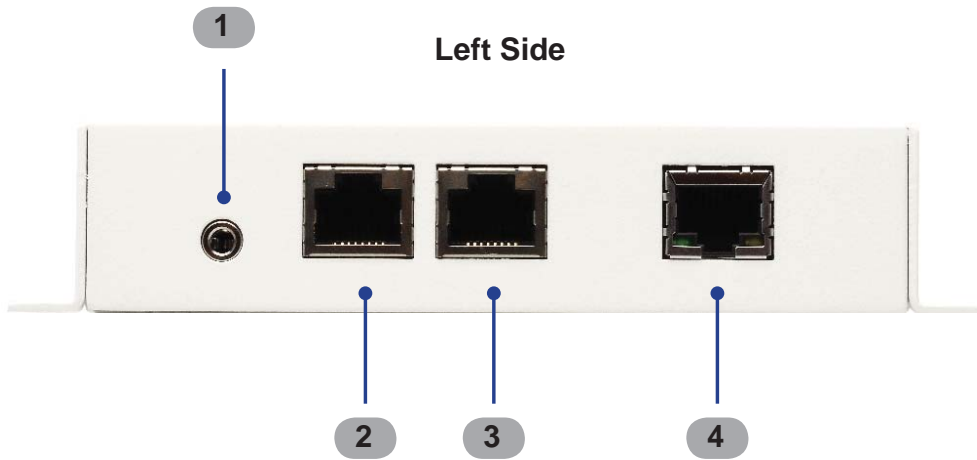


# RECEIVER UNIT LAYOUT

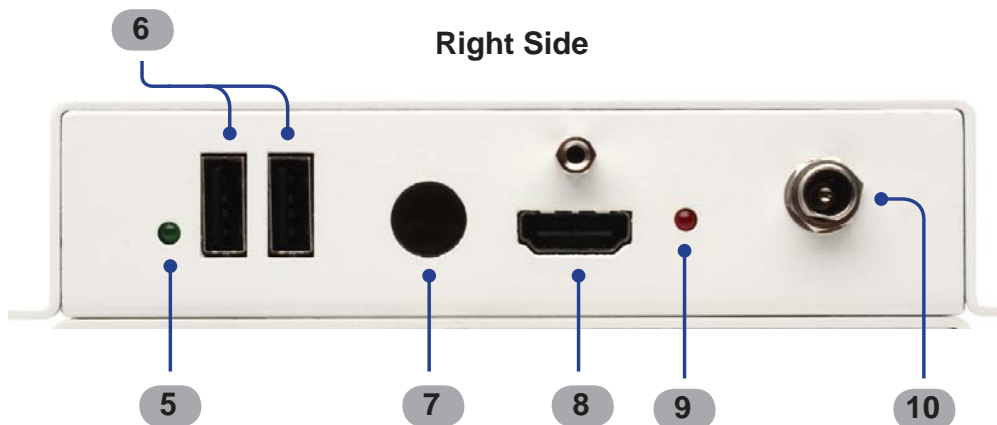
Top



Left Side



Right Side



## RECEIVER UNIT DESCRIPTIONS

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- 1 Ext IR**  
Connect an IR Extender (Gefen part no. EXT-RMT-EXTIR) cable from this port to the Hi-Def source to extend the IR control.
- 2 ETH**  
Connects an Ethernet cable from this port to a network device.
- 3 LINK**  
Transmits the HDMI, Ethernet, and IR signals from the Sender Unit to the Receiver Unit using CAT-5e / CAT-6 cable.
- 4 USB LINK**  
Transmits USB signals from the Sender Unit to the Receiver Unit using CAT-5e / CAT-6 cable.
- 5 USB Indicator**  
This LED glows green when a USB source is connected to the Receiver Unit.
- 6 USB Output Connectors**  
Connect the USB remote devices, such as a keyboard and mouse, to these ports.
- 7 IR**  
This IR window receives signals from the Hi-Def source IR remote control. The IR signals are sent back to the source device, when using an IR Blaster on the Sender Unit.
- 8 HDMI Out**  
Connect an HDTV to this HDMI connector.
- 9 PWR**  
This LED will glow red once the included 5V DC locking power supply has been properly connected to the unit and the locking power supply has been connected to an available electrical outlet.
- 10 5V DC**  
Connect the included 5 V DC locking power supply to this connector.

# CONNECTING THE HDKVM EXTRA LONG RANGE EXTENDER

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## How to Connect the HDKVM Extra Long Range Extender

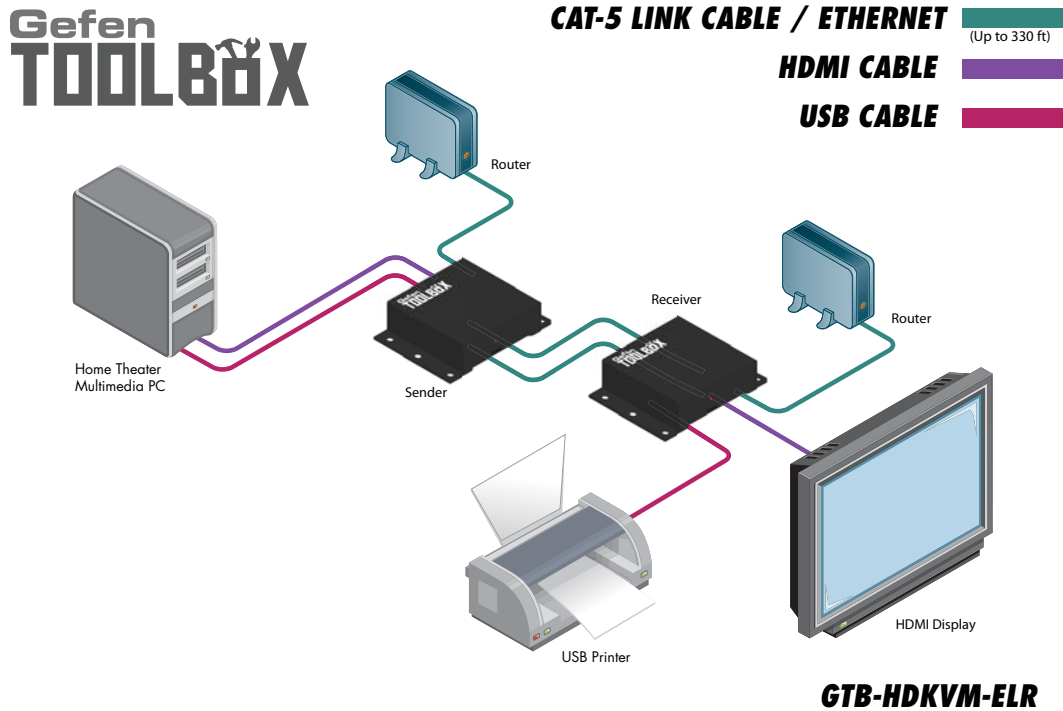
1. Connect the Hi-Def source to the Sender Unit using the included HDMI cable.
2. Use an HDMI cable to connect the Receiver Unit to an HDTV display.
3. Connect the USB host device to the Sender Unit.
4. Connect the USB devices to the Receiver Unit.
5. Connect the Ethernet port on the Sender Unit to the network.
6. Connect the Ethernet port on the Receiver Unit to the Ethernet (LAN) port on the display device.
7. Connect CAT-5e or CAT-6 cables between the Link ports on the Sender Unit and the Link ports on the Receiver Unit.

**NOTE:** If terminating network cables in the field, please adhere to the TIA/EIA568B specification (see page 12).

9. Connect the 5 V DC locking power supplies to the Sender Unit and Receiver Unit. Do not overtighten the locking connectors. Plug the two (2) AC power cords from the power supplies to available electrical outlets.

# CONNECTING THE HDKVM EXTRA LONG RANGE EXTENDER

## Wiring Diagram for the HDKVM Extra Long Range Extender



**Attention:** This product should always be connected to a grounded electrical socket.

# DIP SWITCH CONFIGURATION

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## Receiver Unit

The Gefen HDKVM Extra Long Range Extender contains four (4) DIP switches on the bottom of the Receiver Unit (the Sender Unit does not contain DIP switches). Each of these DIP switches performs a different function.



Four DIP switches located on the bottom of the Receiver Unit.

### ***DIP Switch 1 - EDID Mode (Default = ON)***

- ***ON*** - Pass-Through Mode

DDC and HPD are passed through. Both the connection status and the full video capabilities of the monitor are used by the source device.

- ***OFF*** - Local EDID Mode

Local EDID is used instead of the EDID from the display device. EDID features newer than HDMI 1.3 are removed when the display is read. This provides a general EDID which is compatible with more displays.

# DIP SWITCH CONFIGURATION

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## Receiver Unit

### ***DIP Switch 2 - Hot Plug Detect (Default = OFF)\****

- **ON** - HPD Pass-Through

HPD follows upstream HPD towards the source. The HPD signal will reflect the connection status between the display device and the source device. If the source or monitor is temporarily disconnected then reconnected, there will be a delay of 20 - 30 seconds before the content is restored to the monitor.

- **OFF** - HPD Always High

The HPD signal remains high regardless of the downstream HPD state. If the source or monitor does not properly handle HPD (no picture after connecting / reconnecting source or display), set this DIP switch to the OFF position.

### ***DIP Switch 3 - Supports DVI Connections (Default = OFF)\****

- **ON** - Disable HDCP

If a DVI connection is used, set DIP 3 to the ON position. DVI is supported by disabling HDCP pass-through.

- **OFF** - Enable HDCP

If an HDMI device is connected, set DIP 3 in the OFF position.

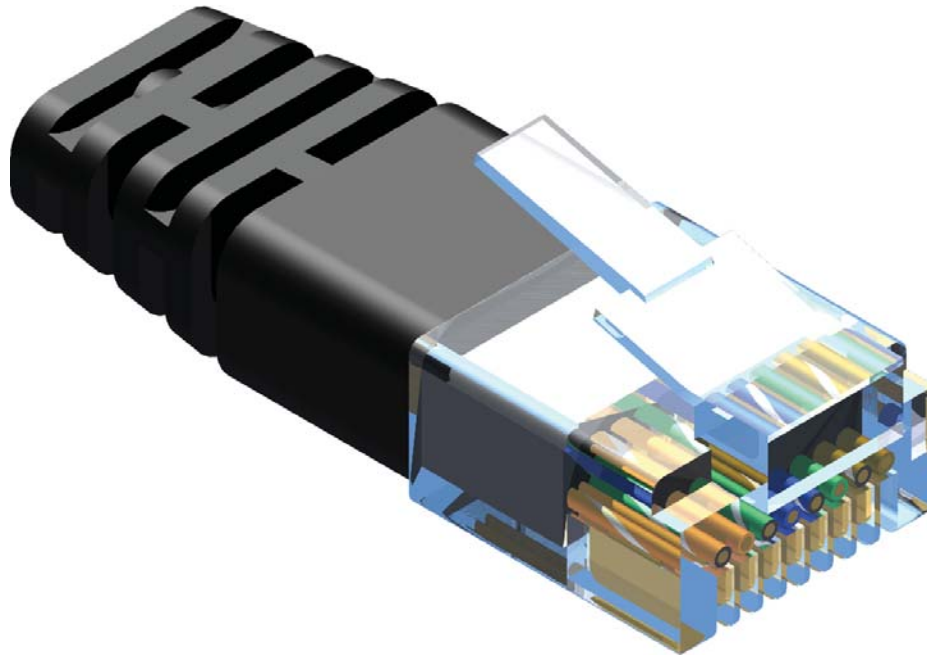
### ***DIP Switch 4 - Not Supported***

- ***Reserved for future use***

\*DIP switch is only operational when using Local EDID (DIP 1 = OFF).

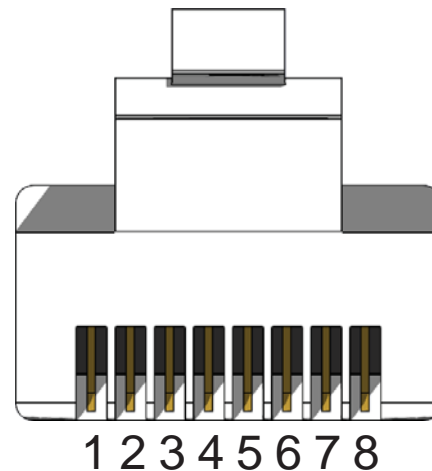
## NETWORK CABLE WIRING DIAGRAM

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Gefen recommends the TIA/EIA-568-B wiring option. Please adhere to the table below when field terminating cable for use with Gefen products.

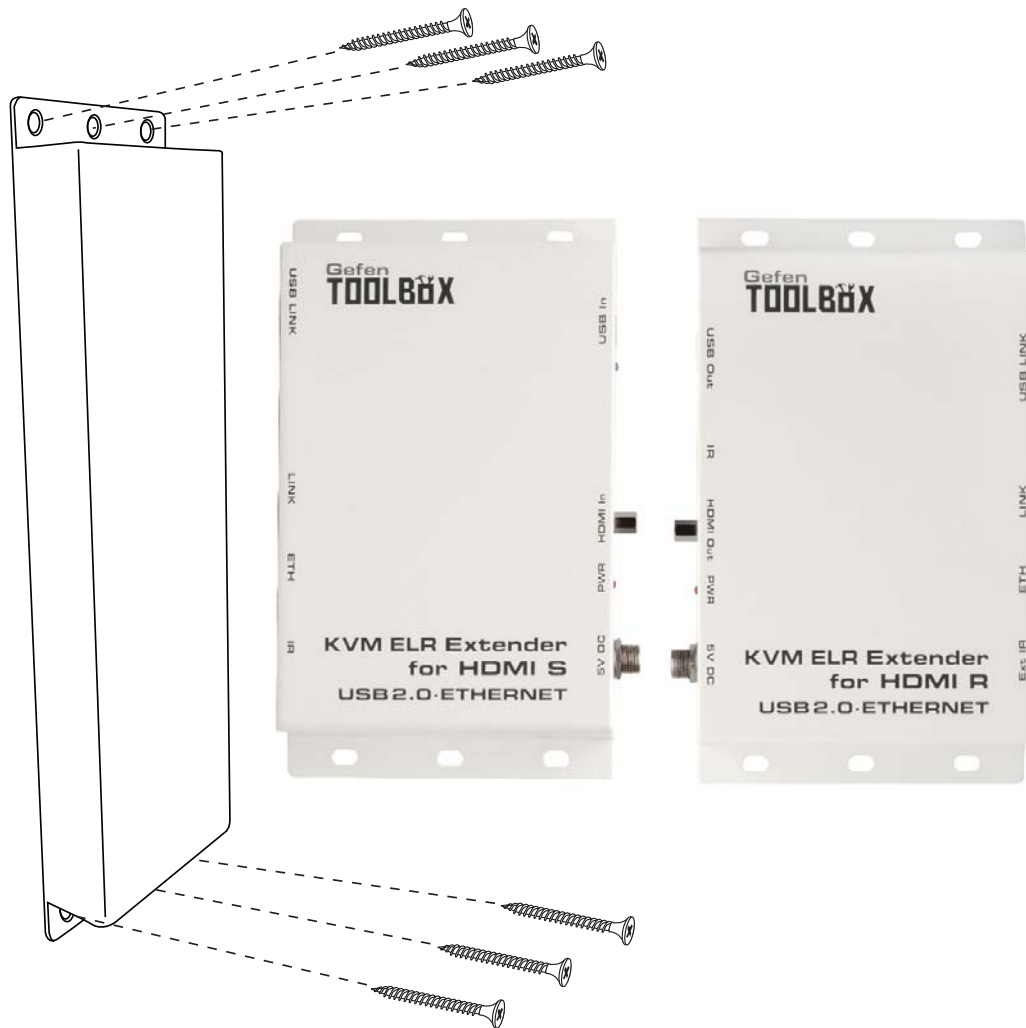
Pin	Color
1	Orange / White
2	Orange
3	Green / White
4	Blue
5	Blue / White
6	Green
7	Brown / White
8	Brown



CAT-5, CAT-5e, and CAT-6 cabling comes in stranded and solid core types. Gefen recommends using solid core cabling.

It is recommended to use one continuous run from one end to the other. In some cases, connecting through a patch might not work.

## WALL MOUNTING INSTRUCTIONS



The GefenToolBox HDKVM Extra Long Range Extender Sender Unit and Receiver Unit may be mounted vertically on a wall or in a cabinet with wood/drywall screws as shown in the diagram above. There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for insertion and retraction of all input and output cables.

For installation on a drywall surface, use a #6 drywall screw. It is recommended when installing on a drywall surface that studs be used to secure the Extender should undue stress be applied when connecting and disconnecting cables.



## SPECIFICATIONS

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Maximum Pixel Clock.....	225 MHz
Input Video Signal.....	1.2 Volts p-p
Input DDC Signal.....	5 Volts p-p (TTL)
HDMI Connector (Sender / Receiver).....	Type A, 19-pin, female
USB Connector (Sender).....	(1) Type B
USB Connector (Receiver).....	(2) Type A
Ethernet Connector (Sender / Receiver).....	(1) RJ-45
Link Connector (Sender / Receiver).....	(2) RJ-45
Power Supply (Sender / Receiver).....	5 V DC
Power Consumption.....	10 W per unit (max.)
Operating Temperature.....	0 ~ 40 °C
Dimensions.....	3.6" W x 7.5" H x 1.3" D
Shipping Weight.....	3 lbs.

## WARRANTY

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Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.
2. Customers outside the US are responsible for shipping charges to and from Gefen.
3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, refer to the Warranty and Return Policy under the Support section of the Gefen Web site at [www.gefen.com](http://www.gefen.com).

## PRODUCT REGISTRATION

**Please register your product online by visiting the Register Product page under the Support section of the Gefen Web site.**



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**[www.gefentoolbox.com](http://www.gefentoolbox.com) [support@gefentoolbox.com](mailto:support@gefentoolbox.com)**



This product uses UL listed power supplies.

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